

(19) World Intellectual Property Organization
International Bureau



(43) International Publication Date
28 August 2003 (28.08.2003)

PCT

(10) International Publication Number
WO 03/071493 A2

(51) International Patent Classification⁷: **G07C 9/00**

(21) International Application Number: **PCT/GB03/00757**

(22) International Filing Date: 21 February 2003 (21.02.2003)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:
0204111.9 21 February 2002 (21.02.2002) GB
0204110.1 21 February 2002 (21.02.2002) GB

(71) Applicant (for all designated States except US): **SITRA LTD** [GB/GB]; Street Cottage, Heyshott, Midhurst, West Sussex, GU29 0DP (GB).

(72) Inventor; and

(75) Inventor/Applicant (for US only): **ISAAC, Stephen, John** [GB/GB]; Street Cottage, Heyshott, Midhurst, West Sussex, GU29 0DP (GB).

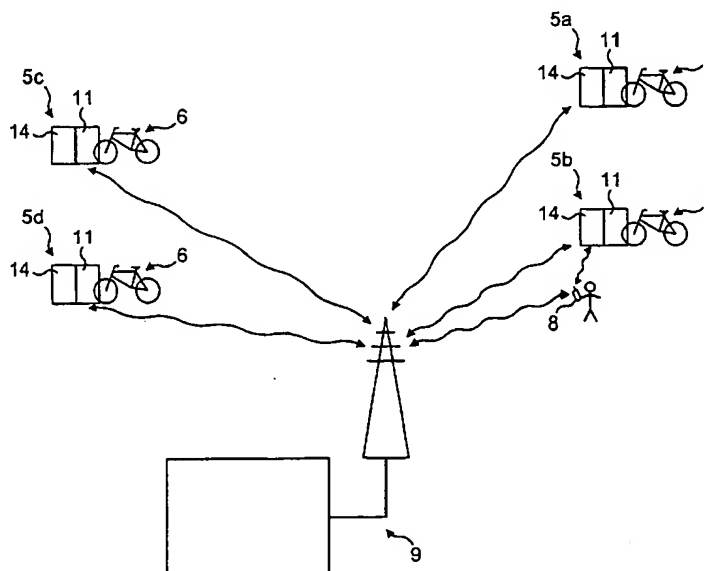
(74) Agent: **BODEN, Keith McMurray**; Fry Heath & Spence LLP, The Gables, Massetts Road, Horley, Surrey, RH6 7DQ (GB).

(81) Designated States (*national*): AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, OM, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW.

(84) Designated States (*regional*): ARIPO patent (GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PT, SE, SI, SK, TR), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

[Continued on next page]

(54) Title: ACCESS SYSTEM OPERABLE BY MOBILE COMMUNICATORS



(57) Abstract: An access system, comprising: a plurality of access units; a plurality of mobile communicators, each registered to a user of the access system and being operable to obtain access to an access unit; and a control center in operative communication with the mobile communicators in enabling access at an access unit through a request made by a mobile communicator of a registered user.



WO 03/071493 A2



Published:

- without international search report and to be republished upon receipt of that report

For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.

ACCESS SYSTEM OPERABLE BY MOBILE COMMUNICATORS

The present invention relates to an access system which is operable by mobile communicators, in particular mobile telephones, to enable access by users of the mobile communicators, where access can be to products, such as bicycles or cars, or facilities through access gates, such as through turnstiles to buildings, for example, museums or sports stadia.

The present invention aims to provide an improved, and in particular more flexible, system and method for providing access to products or facilities, and in a preferred embodiment enable tracking of accessed products.

In one aspect the present invention provides an access system, comprising: a plurality of access units; a plurality of mobile communicators, each registered to a user of the access system and being operable to obtain access to an access unit; and a control center in operative communication with the mobile communicators in enabling access at an access unit through a request made at a mobile communicator of a registered user.

In one embodiment the access units provide for access to products.

Preferably, the access units each include a lock for accessing a product thereat.

In another embodiment the access units provide for access to facilities.

Preferably, the access units each include an access gate for accessing a facility thereat.

In one embodiment the access units each include an access communicator for communicating locally with a mobile communicator of a registered user when located thereat in enabling access at the respective access unit.

Preferably, the access communicator provides for communication with the control center in enabling access at the respective access unit.

In another embodiment the access units each include an access communicator for communicating with the control center in enabling access at the respective access unit.

In one embodiment the products each include a product communicator operable to receive a control signal to control operation of the respective product, and the access units each include an access communicator for communicating locally with the product communicator of a product located at the respective access unit in enabling access at the respective access unit.

Preferably, the access communicator provides for local communication with a mobile communicator of a registered user when located thereat in enabling access at the respective access unit.

Preferably, the access communicator provides for communication with the control center in enabling access at the respective access unit.

Preferably, the product communicators of the products are in operative communication with the control center in enabling access to respective products.

Preferably, the control center determines a location of a product from a location of a mobile communicator used to access the same.

Preferably, the control center determines a location of a product from a location of the access communicator used to access the same.

Preferably, the control center determines a location of a product from a location of the product communicator thereof.

More preferably, the control center is configured to determine a location of a product on access and following access.

In one embodiment a mobile communicator can be enabled to provide access in advance of travelling to an access unit.

Preferably, the mobile communicators comprise mobile telephones.

In another aspect the present invention provides an access system, comprising: a plurality of products, each including a product communicator operable to receive a control signal to control operation of the respective product and enable access thereto; a plurality of mobile communicators, each registered to a user of the access system and being operable to obtain access to a product; and a control center in operative communication with the mobile communicators in enabling access to a product through a request made at a mobile communicator of a registered user.

Preferably, the product communicators of the products are in operative local communication with mobile communicators of registered users when located thereat in enabling access to respective products.

Preferably, the product communicators of the products are in operative communication with the control center in enabling access to respective products.

Preferably, the control center determines a location of a product from a location of a mobile communicator used to access the same.

Preferably, the control center determines a location of a product from a location of the product communicator thereof.

More preferably, the control center is configured to determine a location of a product on access and following access.

In one embodiment a mobile communicator can be enabled to provide access in advance of travelling to an access unit.

Preferably, the mobile communicators comprise mobile telephones.

Preferably, the product is a vehicle.

Preferred embodiments of the present invention will now be described hereinbelow by way of example only with reference to the accompanying drawings, in which:

Figure 1 illustrates an access system in accordance with a first embodiment of the present invention;

Figure 2 illustrates an access system in accordance with a second embodiment of the present invention; and

Figure 3 illustrates an access system in accordance with a third embodiment of the present invention.

Figure 1 illustrates an access system in accordance with a first embodiment of the present invention.

The access system comprises a plurality of access units 5a, 5b, 5c, 5d at which products 6 can be accessed, a plurality of mobile communicators 8 which are assigned to registered users of the access system, and a control center 9 for communicating with the access units 5a, 5b, 5c, 5d and registered mobile communicators 8, controlling access by the access units 5a, 5b, 5c, 5d to the products 6 and billing for access as provided. In this embodiment ones of the access units 5a, 5b are located at a first location and others of the access units 5c, 5d are located at a second, different location.

The access units 5a, 5b, 5c, 5d each include a lock 11 for locking a product 6 thereat, and an access communicator 14 for communicating locally with a mobile communicator 8 of a registered user when located thereat, and in this embodiment the control center 9. In this embodiment the access units 5a, 5b, 5c, 5d are each operable to unlock the lock 11 thereof, and thereby provide access to the product 6, on receipt of an unlock signal by the access

communicator 14 thereof, and transmit a locked signal on return of the product 6 and locking of the product 6 to the lock 11 thereof.

In this embodiment the products 6 are products which are rented, such as vehicles, for example, bicycles and cars, and windsurfers. In one embodiment the products 6 do not include any unique identifier. In another embodiment the products 6 include an identifier which uniquely identifies each of the products 6. In one embodiment the identifier is a physical structure, such as a mating part of defined shape, which is distinguishable by the lock 11 of any access unit 5a, 5b, 5c, 5d. In another embodiment the access communicators 14 of the access units 5a, 5b, 5c, 5d could be configured to receive an identification signal, and the products 6 could include a signal generator for generating an identification signal as the identifier.

The mobile communicators 8, in this embodiment mobile telephones, comprise a first transmitter/receiver unit for locally communicating with an access communicator 14 of an access unit 5a, 5b, 5c, 5d, and a second transmitter/receiver unit for communicating, in this embodiment over a mobile communications network, typically a cellular mobile communications network, with the control center 9. In an alternative embodiment the mobile communications network could comprise a local wireless network, for example, a WiFi network.

The mobile communicators 8 provide for determination of the position thereof, in this embodiment by one of satellite positioning, such as GPS, radio positioning, such as triangulation, or cell identification. In this embodiment the control center 9 periodically logs the position of enabled mobile communicators 8 such as to allow for subsequent review should any dispute arise concerning access to a product 6 by a user.

The mobile communicators 8 are each registered to a user, with the details held for each registered user including the name, address, security information, such as a memorable address or date, bank details to allow for

direct debiting or crediting of charges, personal preferences, and demographic details.

In this embodiment each mobile communicator 8 is activated for use on the access system by use of an authentication mechanism, such as by inputting an operating code, for example, a personal identification (PIN) code.

The access communicators 14 at the access units 5a, 5b, 5c, 5d each include a first transmitter/receiver unit for locally communicating with a mobile communicator 8 of any registered user when located thereat and, where the product 6 locked to the lock 11 thereof generates an identification signal, receiving the identification signal, and a second transmitter/receiver unit for communicating, in this embodiment over a mobile communications network, typically a cellular mobile communications network, with the control center 9. In another embodiment the mobile communications network could comprise a local wireless network, for example, a WiFi network.

In this embodiment the mobile communicators 8 and the access communicators 14 of the access units 5a, 5b, 5c, 5d are configured to communicate with the control center 9 over the same mobile communications network, though different mobile communications networks could be utilized.

In an alternative embodiment the access communicators 14 of the access units 5a, 5b, 5c, 5d could be connected to the control center 9 by fixed lines.

One mode of operation of the access system will now be described hereinbelow, where the products 6 do not include any identifier.

When requiring access to a product 6 at an access unit 5a, 5b, 5c, 5d, in this embodiment a first access unit 5a, a user enables his/her mobile communicator 8 by entering his/her operating code, selecting the "Access" option, and entering the access code corresponding to the first access unit 5a; the access codes typically being unique numbers printed on the access units 5a, 5b, 5c, 5d. In one embodiment, where a plurality of access units

5a, 5b, 5c, 5d are located at one location, for example, in this embodiment first and second access units 5a, 5b at a first location, the control center 9 can transmit a list of those access units 5a, 5b to the mobile communicator 8 to allow the user to select from that list. In this embodiment the location of the user would be derived from the location of the mobile communicator 8. The mobile communicator 8 transmits an access request signal to the control center 9, which access request signal includes the access code of the first access unit 5a. On receiving an access request signal, the control center 9 authenticates the user, debits the appropriate charge for the product 6, in this embodiment a deposit, and transmits an access confirmation signal to the mobile communicator 8. On receiving an access confirmation signal, the mobile communicator 8 locally transmits an access signal, which access signal is received by the access communicator 14 of the first access unit 5a, this access unit 5a having the access code assigned thereto, and causes the lock 11 of the first access unit 5a to be opened, allowing the user access to the product 6.

When the user has finished with the product 6, the user returns the product 6 to the first access unit 5a and locks the same in the lock 11 thereof. On locking the product 6 in the first access unit 5a, the access communicator 14 of the first access unit 5a locally transmits a locked signal to the mobile communicator 8, which locked signal includes the access code for the first access unit 5a. On receiving the locked signal, the mobile communicator 8 transmits a locked request signal to the control center 9, which locked request signal includes the access code for the first access unit 5a. On receiving a locked request signal, the control center 9 debits the appropriate charge as determined by the period of rental, and transmits a locked request confirmation signal to the mobile communicator 8. Where the product 6 is a vehicle and the charge is related to the distance covered by the vehicle, the control center 9 determines the distance covered from the log of the location of the mobile communicator 8. On receiving a locked request confirmation signal, the mobile communicator 8 displays the cost of rental to the user.

In another embodiment communication with the control center 9 could be through the access communicators 14 of the access units 5a, 5b, 5c, 5d,

with communication to and from a mobile communicator 8 being local communication by the first transmitter/receiver unit of the respective access communicator 14.

Another mode of operation of the access system will now be described hereinbelow, where the products 6 include a unique identifier.

When requiring access to a product 6 at an access unit 5a, 5b, 5c, 5d, in this embodiment a first access unit 5a, a user enables his/her mobile communicator 8 by entering his/her operating code, selects the "Access" option in an available menu, and enters the access code corresponding to the first access unit 5a; the access codes typically being unique numbers printed on the access units 5a, 5b, 5c, 5d. In one embodiment, where a plurality of access units 5a, 5b, 5c, 5d are located at one location, for example, in this embodiment first and second access units 5a, 5b at a first location, the control center 9 can transmit a list of those access units 5a, 5b to the mobile communicator 8 to allow the user to select from that list. In this embodiment the location of the user would be derived from the location of the mobile communicator 8. The mobile communicator 8 transmits an access request signal to the control center 9, which access request signal includes the access code for the first access unit 5a. On receiving an access request signal, the control center 9 authenticates the user, debits the appropriate charge for the product 6, in this embodiment a deposit, and transmits an access confirmation signal to the mobile communicator 8. On receiving an access confirmation signal, the mobile communicator 8 locally transmits an access signal, which access signal is received by the access communicator 14 of the first access unit 5a, this access unit 5a having the access code assigned thereto, and causes the lock 11 of the first access unit 5a to be opened, allowing the user access to the product 6.

When the user has finished with the product 6, the user selects the "Return" option from an available menu, and enters the access code for a selected access unit 5a, 5b, 5c, 5d to which the product 6 is to be returned. The user then returns the product 6 to the access unit 5a, 5b, 5c, 5d, which need not be the first access unit 5a from which the product 6 was obtained, and locks

the same in the lock 11 thereof. On locking the product 6 in the access unit 5a, 5b, 5c, 5d, the access communicator 14 of the access unit 5a, 5b, 5c, 5d identifies the product 6 as locked from the product identifier, and locally transmits a locked signal to the mobile communicator 8, which locked signal includes the access code for the access unit 5a, 5b, 5c, 5d. On receiving the locked signal, the mobile communicator 8 transmits a locked request signal to the control center 9, which locked request signal includes the access code for the access unit 5a, 5b, 5c, 5d. On receiving a locked request signal, the control center 9 debits the appropriate charge as determined by the period of rental, and transmits a locked request confirmation signal to the mobile communicator 8. Where the product 6 is a vehicle and the charge is related to the distance covered by the vehicle, the control center 9 determines the distance covered from the log of the location of the mobile communicator 8. On receiving a locked request confirmation signal, the mobile communicator 8 displays the cost of rental to the user.

In this mode of operation, where the product 6 can be returned to an access unit 5a, 5b, 5c, 5d which is other than the access unit 5a, 5b, 5c, 5d from which the product 6 was obtained or returned to an access unit 5a, 5b, 5c, 5d which is at a location other than the location of the access unit 5a, 5b, 5c, 5d from which the product 6 was obtained, the access system can be configured to charge differently than where the product is returned to the access unit 5a, 5b, 5c, 5d from which the product 6 was obtained or returned to an access unit 5a, 5b, 5c, 5d which is at the location of the access unit 5a, 5b, 5c, 5d from which the product 6 was obtained.

In another embodiment communication with the control center 9 could be through the access communicators 14 of the access units 5a, 5b, 5c, 5d, with communication to and from a mobile communicator 8 being local communication by the first transmitter/receiver unit of the respective access communicator 14.

Figure 2 illustrates an access system in accordance with a second embodiment of the present invention.

The access system comprises a plurality of access units 15a, 15b, 15c, 15d for providing access, in this embodiment to facilities, such as museums, amusement parks and stadia, such as sporting stadia and concert stadia, a plurality of mobile communicators 18 which are assigned to registered users of the access system, and a control center 19 for communicating with the access units 15a, 15b, 15c, 15d and registered mobile communicators 18, controlling access by the access units 15a, 15b, 15c, 15d and billing for access as provided. In this embodiment ones of the access units 15a, 15b are located at a first location and others of the access units 15c, 15d are located at a second, different location.

The access units 15a, 15b, 15c, 15d each include a lock 21, in this embodiment an access gate, for example, a turnstile, for providing controlled access, and an access communicator 24 for communicating locally with a mobile communicator 18 of a registered user when located thereat, and the control center 19. In this embodiment the access units 15a, 15b, 15c, 15d are each operable to unlock the lock 21 thereof, and thereby provide access, on receipt of an unlock signal by the access communicator 24 thereof.

In this embodiment the access units 15a, 15b, 15c, 15d are for providing access to facilities, but in other embodiments the access units 15a, 15b, 15c, 15d could be configured to provide for access to purchased products, such as consumables.

The mobile communicators 18, in this embodiment mobile telephones, comprise a first transmitter/receiver unit for locally communicating with an access communicator 24 of an access unit 15a, 15b, 15c, 15d, and a second transmitter/receiver unit for communicating, in this embodiment over a mobile communications network, typically a cellular mobile communications network, with the control center 19. In an alternative embodiment the mobile communications network could comprise a local wireless network, for example, a WiFi network.

The mobile communicators 18 provide for determination of the position thereof, in this embodiment by one of satellite positioning, such as GPS, radio positioning, such as triangulation, or cell identification.

The mobile communicators 18 are each registered to a user, with the details held for each registered user including the name, address, security information, such as a memorable address or date, bank details to allow for direct debiting or crediting of charges, personal preferences, and demographic details.

In this embodiment each mobile communicator 18 is activated for use on the access system by use of an authentication mechanism, such as by inputting an operating code, for example, a personal identification (PIN) code.

The access communicators 24 at the access units 15a, 15b, 15c, 15d each include a first transmitter/receiver unit for locally communicating with a mobile communicator 18 of any registered user when located thereat, and a second transmitter/receiver unit for communicating, in this embodiment over a mobile communications network, typically a cellular mobile communications network, with the control center 19. In another embodiment the mobile communications network could comprise a local wireless network, for example, a WiFi network.

In this embodiment the mobile communicators 18 and the access communicators 24 of the access units 15a, 15b, 15c, 15d are configured to communicate with the control center 19 over the same mobile communications network, though different mobile communications networks could be utilized.

In an alternative embodiment the access communicators 24 of the access units 15a, 15b, 15c, 15d could be connected to the control center 19 by fixed lines.

One mode of operation of the access system will now be described hereinbelow.

When requiring access to an access unit 15a, 15b, 15c, 15d, in this embodiment a first access unit 15a, a user enables his/her mobile communicator 18 by entering his/her operating code, selects an "Access (Current)" option, and enters the access code corresponding to the first access unit 15a; the access codes typically being unique numbers printed on the access units 15a, 15b, 15c, 15d. In one embodiment, where a plurality of access units 15a, 15b, 15c, 15d are located at one location, for example, in this embodiment first and second access units 15a, 15b at a first location, the control center 19 can transmit a list of those access units 15a, 15b to the mobile communicator 18 to allow the user to select from that list. In this embodiment the location of the user would be derived from the location of the mobile communicator 18. The mobile communicator 18 transmits an access request signal to the control center 19, which access request signal includes the access code for the first access unit 15a. On receiving an access request signal, the control center 19 authenticates the user, debits the appropriate charge for access, and transmits an access confirmation signal to the mobile communicator 18. On receiving an access confirmation signal, the mobile communicator 18 locally transmits an access signal, which access signal is received by the access communicator 24 of the first access unit 15a, this access unit 15a having the access code assigned thereto, and causes the lock 21 of the first access unit 15a to be opened, allowing the user access to the first access unit 15a.

In another embodiment communication with the control center 19 could be through the access communicators 24 of the access units 15a, 15b, 15c, 15d, with communication to and from a mobile communicator 18 being local communication by the first transmitter/receiver unit of the respective access communicator 24.

Another mode of operation of the access system will now be described hereinbelow.

When requiring access to an access unit 15a, 15b, 15c, 15d, typically to a facility in advance of travelling to the facility, a user enables his/her mobile

communicator 18 by entering his/her operating code, selects an "Access (Advance)" option on an available menu, and enters an access code corresponding to an access unit 15a, 15b, 15c, 15d of the facility. The mobile communicator 18 transmits an access request signal to the control center 19, which access request signal includes the access code for the facility. On receiving an access request signal, the control center 19 authenticates the user, debits the appropriate charge for access, and transmits an access confirmation signal to the mobile communicator 18. On receiving an access confirmation signal, the mobile communicator 18 locally transmits an access signal, which access signal, when received by the access communicator 24 of the access unit 15a, 15b, 15c, 15d as when the user passes through the access unit 15a, 15b, 15c, 15d, causes the lock 21 of the access unit 15a, 15b, 15c, 15d to be opened, allowing the user access to the access unit 15a, 15b, 15c, 15d. Where the facility is a stadia which is holding a ticketed event, such as a sporting match or a concert, the access signal acts as a virtual ticket. In one embodiment the mobile communicator 18 can be configured to display a ticket to allow for inspection should a query arise as regards ticketing. In an alternative embodiment a request for access to a facility can be made by means other than the mobile communicator 18, for example, by way of the Internet.

In another embodiment communication with the control center 19 could be through the access communicators 24 of the access units 15a, 15b, 15c, 15d, with communication to and from a mobile communicator 18 being local communication by the first transmitter/receiver unit of the respective access communicator 24.

Figure 3 illustrates an access system in accordance with a third embodiment of the present invention.

The access system comprises a plurality of access units 25a, 25b, 25c, 25d at which products 26, in this embodiment vehicles, for example, cars, can be accessed, with each of the products 26 including a product communicator 27, a plurality of mobile communicators 28 which are assigned to registered users of the access system, and a control center 29 for communicating with

the access units 25a, 25b, 25c, 25d, the product communicators 27 of the products 26 and registered mobile communicators 28, controlling access by the access units 25a, 25b, 25c, 25d and billing for access as provided. In this embodiment ones of the access units 25a, 25b are located at a first location and others of the access units 25c, 25d are located at a second, different location.

The access units 25a, 25b, 25c, 25d each include an access communicator 34 for communicating locally with a product communicator 27 of a product 26 which is located thereat and a mobile communicator 28 of a registered user when located thereat, and the control center 29. In this embodiment the access units 25a, 25b, 25c, 25d are each operable to communicate with the product communicator 27 of the product 26 to unlock the product 26, and thereby provide access to the product 26, on receipt of an unlock signal from the access communicator 34 thereof, and transmit a locked signal on return of the product 26 and locking of the same. Where the product 26 is a vehicle, the product 26 is unlocked by operating the central locking to open the doors and de-actuating the immobilizer thereof, and locked by actuating the immobilizer thereof and operating the central locking to close the doors.

The product communicators 27 of the products comprise a first transmitter/receiver unit for locally communicating with an access communicator 34 of an access unit 25a, 25b, 25c, 25d, and a second transmitter/receiver unit for communicating, in this embodiment over a mobile communications network, typically a cellular mobile communications network, with the control center 29. In an alternative embodiment the mobile communications network could comprise a local wireless network, for example, a WiFi network.

The mobile communicators 28, in this embodiment mobile telephones, comprise a first transmitter/receiver unit for locally communicating with an access communicator 34 of an access unit 25a, 25b, 25c, 25d, and a second transmitter/receiver unit for communicating, in this embodiment over a mobile communications network, typically a cellular mobile communications network, with the control center 29. In an alternative embodiment the

mobile communications network could comprise a local wireless network, for example, a WiFi network.

The mobile communicators 28 provide for determination of the position thereof, in this embodiment by one of satellite positioning, such as GPS, radio positioning, such as triangulation, or cell identification. In this embodiment the control center 29 periodically logs the position of enabled mobile communicators 28 such as to allow for subsequent review should any dispute arise concerning access to a product 26 by a user.

The mobile communicators 28 are each registered to a user, with the details held for each registered user including the name, address, security information, such as a memorable address or date, bank details to allow for direct debiting or crediting of charges, personal preferences, and demographic details.

In this embodiment each mobile communicator 28 is activated for use on the access system by use of an authentication mechanism, such as by inputting an operating code, for example, a personal identification (PIN) code.

The access communicators 34 at the access units 25a, 25b, 25c, 25d each include a first transmitter/receiver unit for locally communicating with a product communicator 27 of a product located thereat and a mobile communicator 28 of any registered user when located thereat, and a second transmitter/receiver unit for communicating, in this embodiment over a mobile communications network, typically a cellular mobile communications network, with the control center 29. In another embodiment the mobile communications network could comprise a local wireless network, for example, a WiFi network.

In this embodiment the product communicators 27 of the products 26, the mobile communicators 28 and the access communicators 34 of the access units 25a, 25b, 25c, 25d are configured to communicate with the control center 29 over the same mobile communications network, though different mobile communications networks could be utilized.

In an alternative embodiment the access communicators 34 of the access units 25a, 25b, 25c, 25d could be connected to the control center 29 by fixed lines.

One mode of operation of the access system will now be described hereinbelow.

When requiring access to a product 26 at an access unit 25a, 25b, 25c, 25d, in this embodiment a first access unit 25a, a user enables his/her mobile communicator 28 by entering his/her operating code, selects an "Access" option from an available menu, and enters the access code corresponding to the product 26; the access codes being unique numbers associated with the products 26. For vehicles, the access code could be the registration number. In one embodiment, where a plurality of access units 25a, 25b, 25c, 25d are located at one location, for example, in this embodiment first and second access units 25a, 25b at a first location, the control center 29 can transmit a list of the available products 26 to the mobile communicator 28 to enable the user to select from that list. In this embodiment the location of the user would be derived from the location of the mobile communicator 28. The mobile communicator 28 transmits an access request signal to the control center 29, which access request signal includes the access code of the product 26. On receiving an access request signal, the control center 29 authenticates the user, debits the appropriate charge for the product 26, in this embodiment a deposit, and transmits an access request confirmation signal to the mobile communicator 28. On receiving an access request confirmation signal, the mobile communicator 28 locally transmits an access signal, which access signal is received by the access communicator 34 of the first access unit 25a. On receiving the access signal, the access communicator 34 of the first access unit 25a relays the access signal to the product communicator 27 of the product 26, and, on receiving the access signal, the product communicator 27 of the product 26 unlocks the product 26, allowing the user access to the product 26.

When the user has finished with the product 26, the user returns the product 26 to an access unit 25a, 25b, 25c, 25d, which need not be the first access unit 25a from which the product 26 was obtained, and through the mobile communicator 28 selects the "Return" option from an available menu. The mobile communicator 28 locally transmits a lock request signal, which lock request signal is received by the access communicator 34 of the access unit 25a, 25b, 25c, 25d. On receiving the lock request signal, the access communicator 34 of the access unit 25a, 25b, 25c, 25d transmits a lock signal to the product communicator 27 of the product 26. On receiving the lock signal, the product communicator 27 of the product 26 locks the product 26, and transmits a lock confirmation signal to the access communicator 34 of the access unit 25a, 25b, 25c, 25d, which lock confirmation signal is relayed by the access communicator 34 to the mobile communicator 28, and in turn by the mobile communicator 28 to the control center 29. On receiving a lock confirmation signal, the control center 29 debits the appropriate charge as determined by the period of rental, and transmits a termination signal to the mobile communicator 28. On receiving a termination signal, the mobile communicator 28 displays the cost of rental to the user.

In this mode of operation, where the product 26 can be returned to an access unit 25a, 25b, 25c, 25d which is other than the access unit 25a, 25b, 25c, 25d from which the product 26 was obtained or returned to an access unit 25a, 25b, 25c, 25d which is at a location other than the location of the access unit 25a, 25b, 25c, 25d from which the product 26 was obtained, the access system can be configured to charge differently than where the product is returned to the access unit 25a, 25b, 25c, 25d from which the product 26 was obtained or returned to an access unit 25a, 25b, 25c, 25d which is at the location of the access unit 25a, 25b, 25c, 25d from which the product 26 was obtained. For vehicles, returning the vehicle to other than the access unit 25a, 25b, 25c, 25d from which the product 26 was obtained or returned to an access unit 25a, 25b, 25c, 25d which is at a location other than the location of the access unit 25a, 25b, 25c, 25d from which the product 26 was obtained would be typical in the case of a one-way journey.

In another embodiment communication with the control center 29 could be through the access communicators 34 of the access units 25a, 25b, 25c, 25d, with communication to and from a mobile communicator 28 being local communication by the first transmitter/receiver unit of the respective access communicator 34.

In an alternative embodiment the access units 25a, 25b, 25c, 25d could be omitted, and the system configured such that the mobile communicators 28 communicate directly with the product communicators 27 of the products 26. This embodiment would allow for the products 26 to be dropped off at any location, with the location of the products 26 being determined from the location of the mobile communicators 28 of the respective users when dropped off, or from the location of the product communicators 27 of the products 26. In this embodiment, where the products 26 can have any location, the location of the nearest product 26 could be available to a user through his/her mobile communicator 28.

Finally, it will be understood that the present invention has been described in its preferred embodiments and can be modified in many different ways without departing from the scope of the invention as defined by the appended claims.

For example, the access provided by the above-described systems can readily provide for different charging structures, for example, in accordance with the class of the user, geographic region and time, which could be in any day, week, month or year.

CLAIMS

1. An access system, comprising:
a plurality of access units;
a plurality of mobile communicators, each registered to a user of the access system and being operable to obtain access to an access unit;
and
a control center in operative communication with the mobile communicators in enabling access at an access unit through a request made by a mobile communicator of a registered user.
2. The system of claim 1, wherein the access units provide for access to products.
3. The system of claim 2, wherein the access units each include a lock for accessing a product thereat.
4. The system of claim 1, wherein the access units provide for access to facilities.
5. The system of claim 4, wherein the access units each include an access gate for accessing a facility thereat.
6. The system of any of claims 2 to 5, wherein the access units each include an access communicator for communicating locally with a mobile communicator of a registered user when located thereat in enabling access at the respective access unit.
7. The system of claim 6, wherein the access communicator provides for communication with the control center in enabling access at the respective access unit.
8. The system of any of claims 2 to 5, wherein the access units each include an access communicator for communicating with the control center in enabling access at the respective access unit.

9. The system of claim 2, wherein the products each include a product communicator operable to receive a control signal to control operation of the respective product, and the access units each include an access communicator for communicating locally with the product communicator of a product located at the respective access unit in enabling access at the respective access unit.
10. The system of claim 9, wherein the access communicator provides for local communication with a mobile communicator of a registered user when located thereat in enabling access at the respective access unit.
11. The system of claim 9 or 10, wherein the access communicator provides for communication with the control center in enabling access at the respective access unit.
12. The system of any of claims 9 to 11, wherein the product communicators of the products are in operative communication with the control center in enabling access to respective products.
13. The system of any of claims 9 to 12, wherein the control center determines a location of a product from a location of a mobile communicator used to access the same.
14. The system of any of claims 9 to 13, wherein the control center determines a location of a product from a location of the access communicator used to access the same.
15. The system of any of claims 9 to 14, wherein the control center determines a location of a product from a location of the product communicator thereof.
16. The system of any of claims 13 to 15, wherein the control center is configured to determine a location of a product on access and following access.

17. The system of any of claims 1 to 16, wherein a mobile communicator can be enabled to provide access in advance of travelling to an access unit.
18. The system of any of claims 1 to 17, wherein the mobile communicators comprise mobile telephones.
19. An access system, comprising:
 - a plurality of products, each including a product communicator operable to receive a control signal to control operation of the respective product and enable access thereto;
 - a plurality of mobile communicators, each registered to a user of the access system and being operable to obtain access to a product; and
 - a control center in operative communication with the mobile communicators in enabling access to a product through a request made at a mobile communicator of a registered user.
20. The system of claim 19, wherein the product communicators of the products are in operative local communication with mobile communicators of registered users when located thereat in enabling access to respective products.
21. The system of claim 19 or 20, wherein the product communicators of the products are in operative communication with the control center in enabling access to respective products.
22. The system of any of claims 19 to 21, wherein the control center determines a location of a product from a location of a mobile communicator used to access the same.
23. The system of any of claims 19 to 22, wherein the control center determines a location of a product from a location of the product communicator thereof.

24. The system of claim 22 or 23, wherein the control center is configured to determine a location of a product on access and following access.
25. The system of any of claims 18 to 24, wherein a mobile communicator can be enabled to provide access in advance of travelling to an access unit.
26. The system of any of claims 18 to 25, wherein the mobile communicators comprise mobile telephones.
27. The system of any of claims 18 to 26, wherein the product is a vehicle.

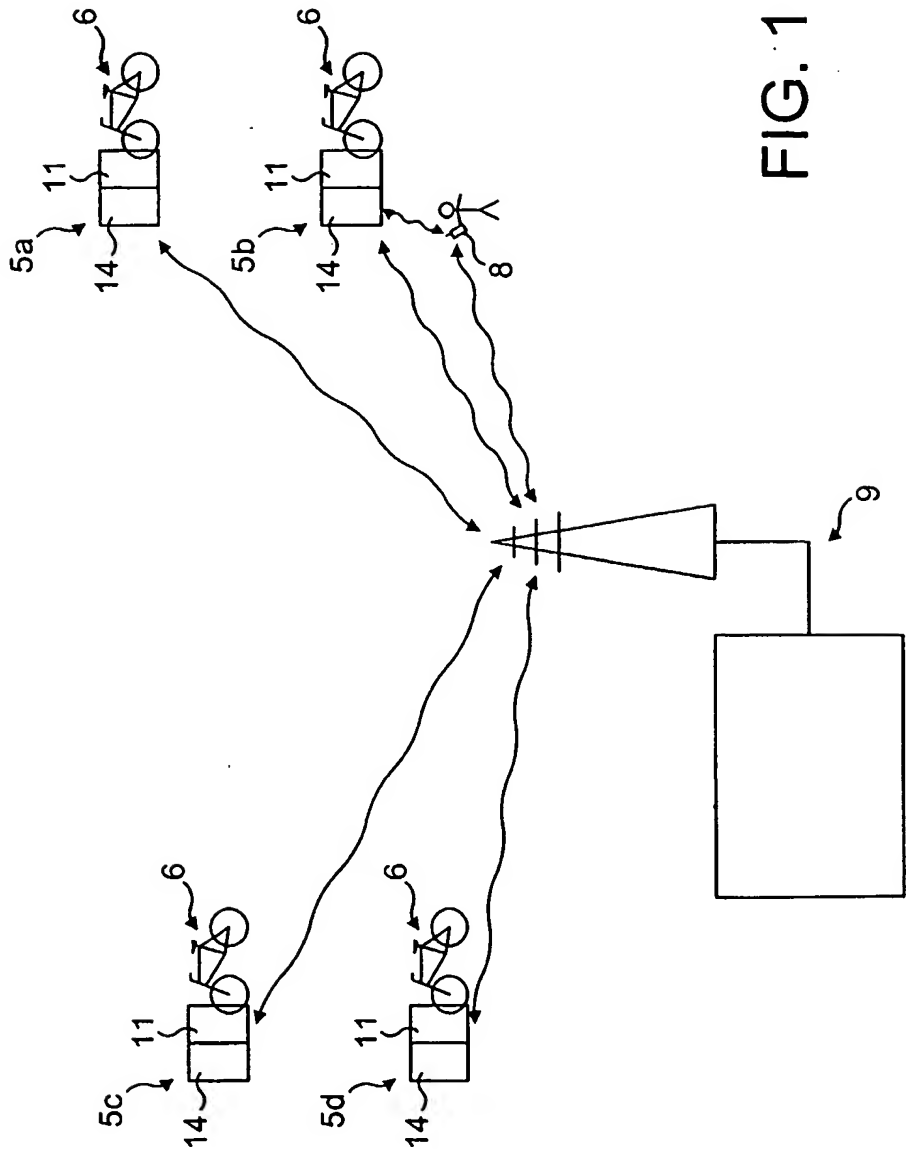


FIG. 1

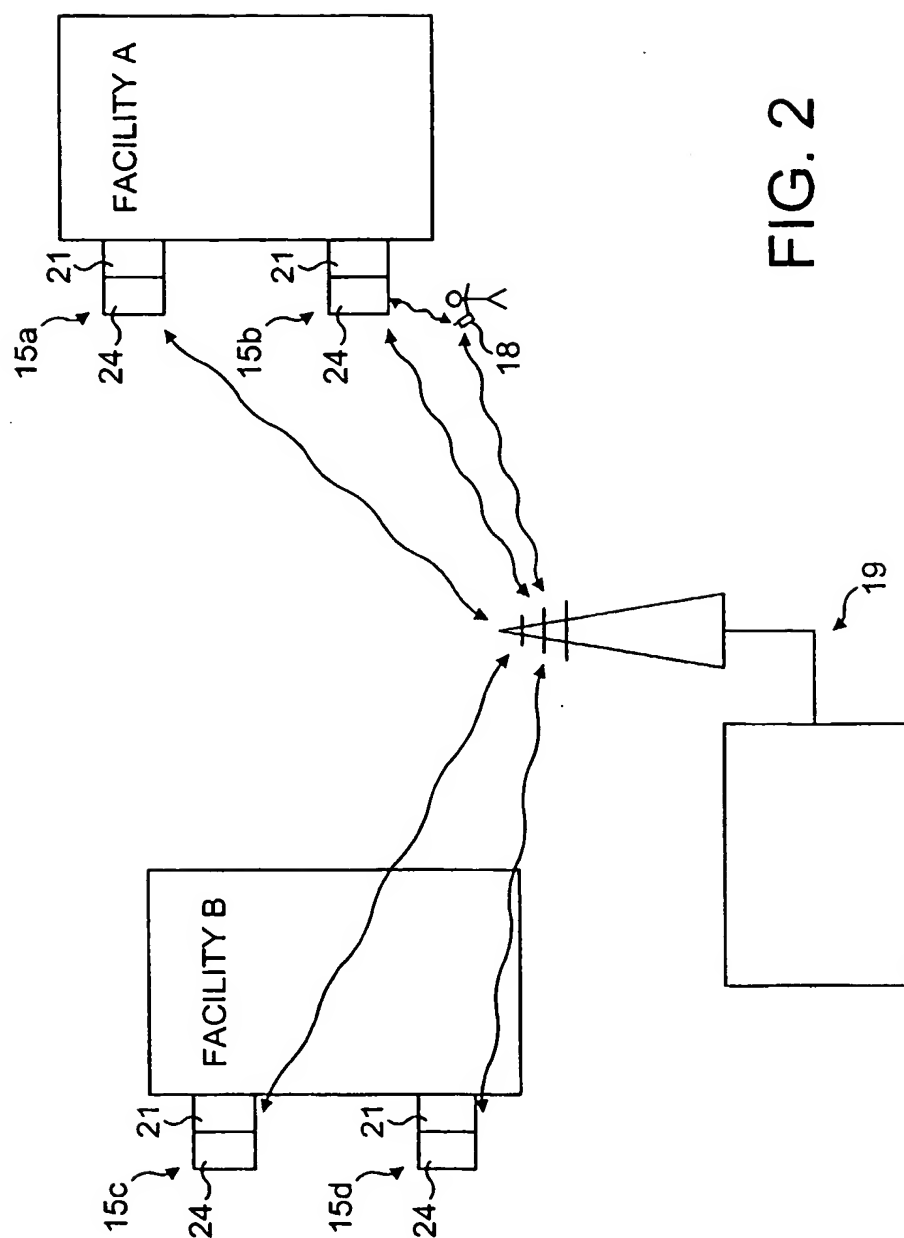


FIG. 2

